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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/784,002 | 02/20/2004 | John W. Bulluck | TRIA:014 | 4378 |

7590 12/01/2005
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| EXAMINER |
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MCCLENDON, SANZA L

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| ART UNIT | PAPER NUMBER |
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1711

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/784,002 | Applicant(s) BULLUCK ET AL. | |
| | Examiner Sanza L. McClendon | Art Unit 1711 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-44 and 46-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 35-44 and 46-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. In response to the Amendment received on September 15, 2005, the examiner has carefully considered the amendments. The examiner acknowledges the cancellation of claims 1-34 and 45. The examiner would like to point out the applicant's claim identifiers for new claims 47-55 are improper, please correct with next response.

Response to Arguments

2. Applicant's arguments with respect to claims 35-44, and 46-55 have been considered but are moot in view of the new ground(s) of rejection. Applicant alleges the examiner's office action lacked foundation regarding step (b) of applicant's method (creating a vacuum). Accordingly, the examiner has provided foundation for the reasoning as can be found below in a new grounds of rejection. Additionally, applicant states that Smith et al does not teach or suggest or motivate a skilled artisan to repair airplanes. However, the examiner deems that while Smith et al does not expressly state "airplane", Smith et al does positively recite repairing vehicles, installations (which are metal or plastic), and plugging holes, cracks or the like in a damaged surface. The examiner deems that airplane can be encompassed in the terms vehicles and installation (machinery). Applicant refers examiner to column 2, lines 27-30 for specific usage in Smith et al. The examiner deems that this passage, refers to only one embodiment of the Smith et al patent, the overall teachings, in the examiner interpretation, is for repairing composite materials, such as vehicles and installations. Per applicant's argument's on page 7, last paragraph, the examiner disagrees. The description of Figure 3 can found in column 4, lines 10-15. The examiner can find no teaching that expressly states that the formulation used to plug the hole is a different

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photocurable composition that is different from the photocurable patch used to repair the hole. As a matter, the citation applicant refers the examiner to states (see column 8, lines 12-17), that the same resin composition utilized in forming the prepeg can be used to form the molding composition, which is utilized as a plug for holes. Therefore the examiner deems that the combination of reference.

With regards to the arguments on page 8, first paragraph, applicant appears to be arguing the difference between a resin and an oligomer. First examiner refers applicant to instant claims 37-39, 48-50, and the specification pages 5-6, wherein applicant states "

The primary oligomer families are generally referred

to

to as epoxy acrylates, urethane acrylates, polyester acrylates, polyether acrylates, amine modified polyether acrylates, and acrylic acrylates.

" and list the use of CN 104 and CN 120, which are epoxy acrylates based on bisphenol A compounds. Smith et al column 7, lines 62-64 teaches using an acrylated bisphenol A diepoxide or an acrylated novolak triepoxide with 10% of vinyl toluene or 10% hydroxypropyl acrylate. The examiner deems these appear to be the same epoxy acrylate compound, whether described as a resin, oligomer, or polymer. The examiner shifts the burden back to applicant as to whether these are the same or not; since the Patent and Trademark Office is not equipped to conduct experimentation in order to determine whether Applicant's composition differs and, if so, to what extent, from the discussed reference. Therefore, with the showing of the reference, the burden of establishing non-obviousness by objective evidence is shifted to the Applicants. Additionally, applicant is referred to product descriptions for CN104 and CN120 both of which are used in applicant's examples.

With regard to applicant's arguments regarding the second full paragraph on page 8. The examiner refers applicant to column 5, lines 40-43, wherein Smith et al provides guidance on what to do (i.e., using a low-pressure mercury vapor lamp) since the phosphine oxide results in high exothermicity on curing. Therefore the examiner disagrees with applicant about the use of a UV sensitizer being used with a phosphine oxide initiator. Additionally, the secondary reference teaches it may be advantageous to use a hydroxy ketone in combination with a phosphine oxide initiator—see rejection below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 35-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (5,166,007) in view of Leppard et al (5,767,169).

Smith et al teaches repair compositions for vehicles. Said repair compositions comprise a UV-light curable composition. Said composition comprises (a) one or more ethylenically unsaturated copolymerizable polyester, vinyl or acrylic esters, (b) one or more ethylenically unsaturated copolymerizable monomeric compounds, (c) an inhibitor, and (d) a UV sensitizer, with or without optional additives--see column 4, lines 17-35. Said UV sensitizer consists of one or more acylphosphine oxide compounds having the formula found in column 4. Preferably said acylphosphine oxide is 2,4,6-trimethylbenzoyl diphenylphosphine oxide--see column 5, lines 35-37. Component (a) is preferably an acrylated bisphenol A diepoxide or an acrylated novolak triepoxide--see column 7, lines 62-65. Said monomeric compounds (b) include a mixture of monomeric compounds, such as styrene and other monomers. Said other monomer can be found in column 6, lines 60 to the end. Additionally it is disclosed the acrylic or methacrylic monomers having hydroxyl groups can be added since they increase cure rate--see column 7, lines 23-30. Preferred are combinations of vinyl toluene and hydroxyalkyl acrylate monomers--see column 7, lines 57-60.

While Smith et al does not expressly teach using the acylphosphine oxide with a hydroxyl ketone photoinitiator, it is well-known in the art to combine such types of photoinitiators for a thorough cure--see Leppard et al column 16, lines 30-35. Therefore the examiner deems that it would have been obvious for a artisan of ordinary skill in the art at the time of the invention to combine the acylphosphine oxide with a hydroxyl ketone, as found in the teachings of Leppard et al. The motivation would have been a reasonable expectation of obtaining an adequately cured laminate in the

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repairing of vehicles as taught by Smith et al in the absence of evidence to the contrary and/or unexpected results. Additionally, Smith et al does not

Said repair methods using said formulations includes a photocurable prepeg fabric, a UV transparent release film, and a UV blocking film, wherein the above described formulation is used to impregnate the prepeg fabric. Said prepeg fabric can be a woven fiberglass fabric. In addition, the above method can include a layer of photocurable molding applied to an area for repair. Said photocurable molding layer includes the above described photocurable composition containing a thickener and/or a reinforcing agents. Figure 3 and column 8, lines 40-63, shows a metal surface having a hole (repairable area) that is first plugged with the photocurable molding rein to smooth said repair area, applying a patch (fiberglass mat impregnates with a photocurable resin composition), and then curing said laminate with UV light to obtained the repaired vehicle component. This appears to anticipate the method of claim 35.

While the examiner is aware that Smith et al does not disclose creating a vacuum across at least on side of the coated UV curable light formulation, the examiner deems that it would have been obvious for a skill artisan at the time of the invention to create a vacuum before irradiation of the UV curable formulation in making laminate composite materials as can be seen in Leppard et al. Therefore the examiner deems that using a vacuum in a method for making/repairing a composite material is known and within the skill of an ordinarily skilled artisan—see Leppard et al, example 33, wherein it is taught a laminate made from 6 layers of matting and a UV curable formulation are fly compressed before irradiation.

With regards to claim 46, applicant has not shown the criticallity for using the specific range of components over using any range of these components in the absence of evidence to the contrary and/or unexpected results.


Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sanza L. McClendon
Examiner

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